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EXAMINER
RILEY, MARCUS T

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2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1/28/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date *Attached.*

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Claim Objections

1.   **Claims 2 and 5(l)** are objected to because of the following informalities:

Claim 2 states in part *"The method of claim1"*. This appears to be a typographical error and it is assumed for continued examination purposes that *"claim1"* has a space between the word *"claim"* and the number *"1"*.

Claim 2 also states in part *"...being divided in to several individual area"*. This appears to be a typographical error and it is assumed for continued examination purposes that "area" is intended to be plural and written as *"areas"*.

Claim 5(l) states in part *"processing the text with link art processing"*. This also appears to be a typographical error and it is assumed for continued examination purposes that *"link"* is intended to be *"line"*.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   **Claims 4 and 7** rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. These claims are omnibus type claim.

Claims 4 and 7 recite *"...the equation of the dithering process is the sampling mode shown in the figure 5 (marked as 50) times one sixty-eighth"*. They are indefinite and fail to point out and what is included or excluded by the claim language. Applicant should find a way to

claim the invention without reference to a figure *[Reference MPEP 2173.05(r) and MPEP 2173.05(s)]*. It is assumed for continued examination purposes and understood by those of ordinary skill in the art, the placement of orphan pixels is merely exemplary and vary with a sampling/detection window.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   **Claims 1-3, 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanemitsu et al. (US 4,996,603, hereinafter Kanemitsu '603) in combination with Koga et al. (US 6,556,711 B2, hereinafter Koga '711). Koga '711 teaches determining a background color from a master copy (*"FIG. 7 is a diagram showing the detailed procedure of the background image segmentation step 22. A background color extraction step 211 analyzes the colors of the inputted intermediate image segment and judges whether the inputted intermediate image segment contains a color indicative of a background image segment."* column 11, lines 50-55); and separating content of the master copy into photo and character with the background color as criterion (*" FIG. 17 is a block diagram showing the construction of an image segmentation unit for discriminating between a character/line-drawing image segment and a pseudo-halftone image segment;"* column 5, lines 14 -17). However, Koga '711 does not teach processing a photo with halftone processing, processing a character with line art processing and combining the

processed photo and processed character as a whole. Kanemitsu '603, in the same field of endeavor of image processing apparatus and methods ("*Image Processing System*", see eg. Title), teaches processing a photo with halftone processing ("*When the circuit 3 detects a photo portion, the half-tone signal HTS is selected.*" column 4, lines 38-39); processing a character with line art processing ("*In the selection circuit 4, when the circuit 3 detects a character portion, the fixed slice signal FSS is selected.*" column 6, lines 36 and 37); combining the processed photo and processed character as a whole ("*The outputs of the circuits 1 and 2, i.e., the fixed slice signal FSS and the half-tone signal HTS, are input to the circuit 4.*" column 4, lines 31-33).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to combine the image processing system as taught by Koga '711 and the teachings of Kanemitsu '603, because this would provide an image processing apparatus and method in which excellent processing is applied to a color image in which image segments having different characteristics are mixed ("*An object of the present invention is to... provide an image processing apparatus and method in which excellent processing is applied to a color image in which image segments having different characteristics are mixed.*" Koga '711 at column 3, lines 55-58).

Regarding claim 2, Koga '711 discloses condensing master copy based on background color ("*Here the reduced image is obtained by reducing the size of the input image in the horizontal and vertical directions...*" column 33, lines 57-59); cutting transversely the condensed area ("*...an image reduced by ½ vertically and horizontally can be created.*" column 34, lines 9-11); cutting vertically the transversely cut area for making the original area divided into several

individual areas ("*The input image is divided into blocks 3101 of two pixels vertically and two pixels horizontally (for a total of four pixels) shown in FIG. 45, and one pixel in each block (say a pixel 3102 in the upper left-hand corner) is made one corresponding pixel 3103 of the reduced image, whereby an image reduced by ½ vertically and horizontally can be created.*" column 34, lines 5-11); choosing a second background color from individual area ("*...and second extraction means for extracting an image segment from the input color image using data of the image segment extracted by the first extraction means.*" column 4, lines 22-25); marking individual area with photo as a photo area ("*In the second embodiment, however, a binary image compressed by a compression method stored in the compressed-data header is registered as "image-segment shape".* column 22 lines 39-42); marking individual area with character as a character area ("*...an image portion corresponding to the image-segment position of node to be processed is compressed by a coding method suited to a continuous color tone and the compressed data is registered as the "image-segment image data...*" column 23, lines 32-36); utilizing second background color to condense individual area and repeating the condensing step when the photo area and the character area of the individual area is unable to be identified ("*It should be noted that quantization may be performed again when the color histogram is created. For example, in a case where an image of eight bits per R, G, B has been inputted, creating a color histogram while re-quantizing to four bits or seven bits results in a more complicated process. However, the memory size for storing the histogram can be reduced. An additional effect is that even if the color of the background image segment is uneven, a background image segment can be segmented in stable fashion.*" column 12, lines 14-23").

Regarding claim 3, Kanemitsu '603 discloses the halftone processing is a dithering process ("...*the multi-level signal of the photo portions of the original image is binary-coded by the half-tone processing method based on dithering for binary coding the multi-level signal based on a predetermined dither pattern.*" column 3, lines 19-23).

Regarding claim 5,

a.   Koga '711 discloses choosing a first background color from a master copy ("*FIG. 7 is a diagram showing the detailed procedure of the background image segmentation step 22. A background color extraction step 211 analyzes the colors of the inputted intermediate image segment and judges whether the inputted intermediate image segment contains a color indicative of a background image segment.* column 11, lines 50-55);

b.   Koga '711 discloses separating the content of the master copy into images and text with the first background color as the criterion (" *FIG. 7 is a block diagram showing the construction of an image segmentation unit for discriminating between a character/line-drawing image segment and a pseudo-halftone image segment;*" column5, lines 14 -17);

c.   Koga '711 discloses condensing the master copy based on the first background color ("*Here the reduced image is obtained by reducing the size of the input image in the horizontal and vertical directions...*" column 33, lines 57-59);

d.   Koga '711 discloses cutting transversely the condensed master copy based on the first background color ("...*an image reduced by ½ vertically and horizontally can be created.*" column 34, lines 9-11);

e.   Koga '711 discloses cutting vertically the transversely cut master copy based on the first background color making several individual areas ("*The input image is divided into*

blocks 3101 of two pixels vertically and two pixels horizontally (for a total of four pixels) shown in FIG. 45, and one pixel in each block (say a pixel 3102 in the upper left-hand corner) is made one corresponding pixel 3103 of the reduced image, whereby an image reduced by ½ vertically and horizontally can be created." column 34, lines 5-11);

      f.   Koga '711 discloses choosing a second background color from the individual areas ("*...and second extraction means for extracting an image segment from the input color image using data of the image segment extracted by the first extraction means.*" column 4, lines 22-25);

      g.   Koga '711 discloses identifying images and text based on the second background color ("*...and second extraction means for extracting an image segment from the input color image using data of the image segment extracted by the first extraction means.*" column 4, lines 22-25);

      h.   Koga '711 discloses marking the individual areas with images as an image area ("*In the second embodiment, however, a binary image compressed by a compression method stored in the compressed-data header is registered as "image-segment shape"...*" column 22 lines 39-42);

      i.   Koga '711 discloses marking the individual areas with text as a text area ("*...stores the created compression data in the compressed-data memory 1012. More specifically, an image portion corresponding to the image-segment position of node to be processed is compressed by a coding method suited to a continuous color tone and the compressed data is registered as the "image-segment image data..."* column 23, lines 31-36);

j.   Koga '711 discloses if the individual areas cannot be identified, replacing the first

background color with the second background color, condensing the unidentifiable individual

areas based on the second background color, and then repeating steps d to j ("*Under the control*

of an image-segment discrimination control step 31, the foregoing steps are repeated until there

are no longer any undiscriminated image segments. As a result, image-segment components of

each image segment are discriminated" column 14, lines 56-60);

k.   Kanemitsu '603 discloses processing images with halftone processing ("*When the*

circuit 3 detects a photo portion, the half-tone signal HTS is selected." column 4, lines 38-39);

l.   Kanemitsu '603 discloses processing text with line art processing ("*In the*

selection circuit 4, when the circuit 3 detects a character portion, the fixed slice signal FSS is

selected." column 6, lines 36 and 37);

m.   Kanemitsu '603 discloses outputting the processed images and processed text as a

whole ("*The outputs of the circuits 1 and 2, i.e., the fixed slice signal FSS and the half-tone*

signal HTS, are input to the circuit 4." column 4, lines 31-33).

Regarding claim 6, Kanemitsu '603 discloses the halftone processing is a dithering

process ("…the multi-level signal of the photo portions of the original image is binary-coded by

the half-tone processing method based on dithering for binary coding the multi-level signal based

on a predetermined dither pattern." column 3, lines 19-23).

6.   **Claims 4 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over the

combination of Kanemitsu '603 and Koga '711 as applied to claim 1 above, and further in view

of Bearss et al. (US 5,987,221 hereinafter Bearss '221).

The combination of Kanemitsu '603 and Koga '711 does not expressly teach that the equation of dithering process is the sampling mode (mark 50) shown in Figure 5 times one sixty-eighth. Bearss '221 discloses the equation of dithering process is the sampling mode (mark 50) shown in Figure 5 times one sixty-eighth (*"As will be understood by those of ordinary skill in the art, the placement of orphan pixels in FIG. 2 is merely exemplary, and variations may also serve for a 3.times.3 sampling/detection window. Moreover, the orphan placement may also vary given a different size window, such as for a 5.times.5 area window, a 1.times.3 area window, or for a multiple sampling/detection window configuration."* column 6, lines 42-47).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to combine the image processing system as taught by the combination of Kanemitsu '603 and Koga '711 and modify it to the sampling mode as required by Bearss '221, because 'it would improve the chances for discriminating between halftone image data and text/line art image data during rendering (*"...the placement of orphan pixels in dither matrix 40 at least enhances the probability of having and detecting orphan pixels in the resultant raster image array 50, thus improving the chances for discriminating between halftone image data and text/line art image data during rendering.."* Bearss '221 at column 7, lines 6-11).

Regarding claim 7, Bearrs '221 discloses the equation of the dithering process is the sampling mode shown in the figure 5 (marked as 50) times one sixty-eighth. (*"As will be understood by those of ordinary skill in the art, the placement of orphan pixels in FIG. 2 is merely exemplary, and variations may also serve for a 3.times.3 sampling/detection window. Moreover, the orphan placement may also vary given a different size window, such as for a*

5.times.5 area window, a 1.times.3 area window, or for a multiple sampling/detection window configuration." column 6, lines 42-47).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcus T. Riley whose telephone number is 571-270-1581. The examiner can normally be reached on Monday - Friday, 7:30-5:00, est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on 571-272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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